ABSTRACT OF THE DISCLOSURE

The invention is a method for making an electrode by depositing nano-particles on an object by forming a nano-particle dispersion, coating an object with the nano-particle dispersion thereby disposing nano-particles from the nano-particle dispersion on the object forming an electric conductor, removing at least a portion of the carrier, forming an electrical circuit using the electric conductor such that electric current flows in at least a portion of a medium using the electric conductor, and connecting the electrical circuit to a load, wherein the nano-particle dispersion has between 0.05 wt% and 10 wt% of a charged soluble polymer having a molecular weight of less than 25,000 amu, between 0.5 wt% and 10 wt% of a metal component, and balance of a carrier.